BURNLESS X-RAY CLAIM OF INVENTOR IN WAR ON DISEASE

Charles H. Stanley Says His Apparatus Overcomes Vital Objection to Roentgen Treatment of Cancer

Deafness, Diabetes and Bright's Disease Other Ailments Said to Be Benefited by New Device

MORE than a year ago Dr. Howard A. Kelly, the noted surgeon of the Johns Hopkins Hospital of Baltimore, asserted that the X-ray apparatus would probably supplant radium in the treatment of certain diseases. At that time Dr. Kelly had achieved through the agency of radium cures that the scalpel could not effect, but despite his enthusiasm that eminent specialist freely proclaimed greater possibilities for the Roentgen tube when perfected.

About the same time Dr. Kelly explained to a Congressional committee just how radium probably wrought its marvellous cures. He said: "Radium goes further than surgery, because surgery only treats that which is visible, and the surgeon is under the constant impulse and desire to save the face of the patient. He does not want to mutilate the patient, and so he thinks that taking out just so much will do. He fails, and there is a recurrence. But the radium, like the blessed light from heaven above, bathes the part, throws its gamma rays, which are its active rays, into the part, acting on all the myriad microscopic cells, not only the manifest, gross, surgical lesions, but all those little cells through the surrounding tissues, and it acts like millions of microscopic knives to destroy them, or like a lash to drive them back. In other words, radium will not only do what surgery does, but it goes beyond and takes a class of cases which are utterly beyond surgery."

But the manipulation or control of this radioactive substance has well defined limits, and for certain internal applications this curative medium has not been successfully employed for that reason. As Dr. Kelly expressed it, an X-ray tube susceptible of nice control will make it possible to deal with abdominal cancer, to cover a larger area needing this method of attack, and, at the same time, will afford cheaper treatment for the suffering multitude. Until recently, however, the X-ray was something of a two edged weapon in the assault upon disease: the patient was likely to be burned while undergoing exposure to the penetrating rays, and the operator, to safeguard himself, had to stand behind a metal screen and watch his subject from afar through a lead glass panel.

When "burns" are spoken of in connection with the X-ray they should not be confused with superficial burns due to excessive heat. The X-ray burn manifests itself slowly and sometimes only after many days, because the injury is fairly deepseated, the tissues are destroyed by the chemical effects of the piercing rays and the patient does not feel the hurt instantly as he would if subjected to a painfully hot body. Indeed, these actinic burns are apt to be malignant in their character and very stubborn in their persistence. Now the patient labors of a New Yorker have discovered and apparently perfected a burnless X-ray that retains all of the beneficial qualities while free from baneful ones.

Charles H. Stanley believes he has evolved a burnless or harmless X-ray, or, to be more exact, produced an apparatus by which he can generate X-rays that will not injure bodily tissues, but at the same time will do the corrective work of the gamma rays of radium, described by Dr. Kelly. This invention, he believes, will work therapeutic wonders, and if so it unquestionably marks one of the big advances of science in its tireless battle with disease. Mr. Stanley is not a physician, but his electrical researches have been inspired alone by a desire to use that agency for the relief of sufferers.

Fourteen years ago he began his experiments. He believed cancer could be cured or checked by means of an X-ray tube energized by an alternating current of more than ordinarily high frequency. He managed to obtain unusually high frequencies, but unhappily his apparatus lacked the necessary feature of control. From a laboratory point of view he had something of extreme interest then, indeed so spectacular that it was used later for exhibition purposes, but that was not Mr. Stanley's goal.

It is not of present interest to describe how he overcame technical obstacles one after another by tirelessly sticking to a task that would have discouraged most men. Happily he has the disposition of the born researcher, and what he believed possible he has attained.

At present the highest frequencies used therapeutically do not exceed 720 alternations a second. Mr. Stanley has been able to build up these vibrations or waves until they "run into trillions," as the inventor puts it. Indeed tese alternations are of such amazing rapidity that the needle of the meter is apparently at a standstill. In other words, the changing impulses in the circuit follow one another with such velocity that the current is nearly a direct one. How is this accomplished?

Inasmuch as Mr. Stanley has not yet obtained his patents he is naturally indisposed to go into details, but he asserts that the results are indisputable. He says he can produce an electric pressure of quite a million volts, and by recourse to a series of transformers he takes the current delivered from the street mains and, step by step, jumps it up to this limit. In a suitable fashion he especially planned apparatus he changes the current of 60 cycles until he has the incomprehensible frequencies already mentioned.

With these characteristics under the nicest sort of control, the inventor is able to give to his X-ray tube its unusual qualities. Just like radium, the Roentgen tube gives off alpha, beta and gamma rays, and each of these, as has been so well established by Dr. Robert Abbe of this city, has its own peculiar effect upon vital cells.

By throwing in successive switches Mr. Stanley is able to produce each of these rays in turn, and at the same time he can regulate their "dosage" and their powers of penetration. In electrical parlance voltage corresponds to pressure in hydraulics, and amperage is the electrical equivalent for flow. By jockeying voltage and amperage Stanley is able to produce, as it were, an invisible knife of whatever fineness and depth of reach he may desire. In this way he can either broaden or narrow exquisitely the path of his rays and temper them so that they will get at and deal with the trouble in the most appropriate manner.

Heretofore electro-therapeutists, using Roentgen tubes, have desired "hard" rays, believing that the so-called "soft" rays lacked the vigor and the searching power needful. Curiously, the present inventor preferably employs "soft" rays, and he is able to take the ordinary commercial X-ray tubes and so modify their working that a "hard" tube can be made to project "soft" rays of the greatest penetrative capacity. These soft rays apparently are able to deal effectively with diseased tissues without hurting them in the least. Possibly this can be better understood by giving verbatim Mr. Stanley's explanation of the phenomena involved.

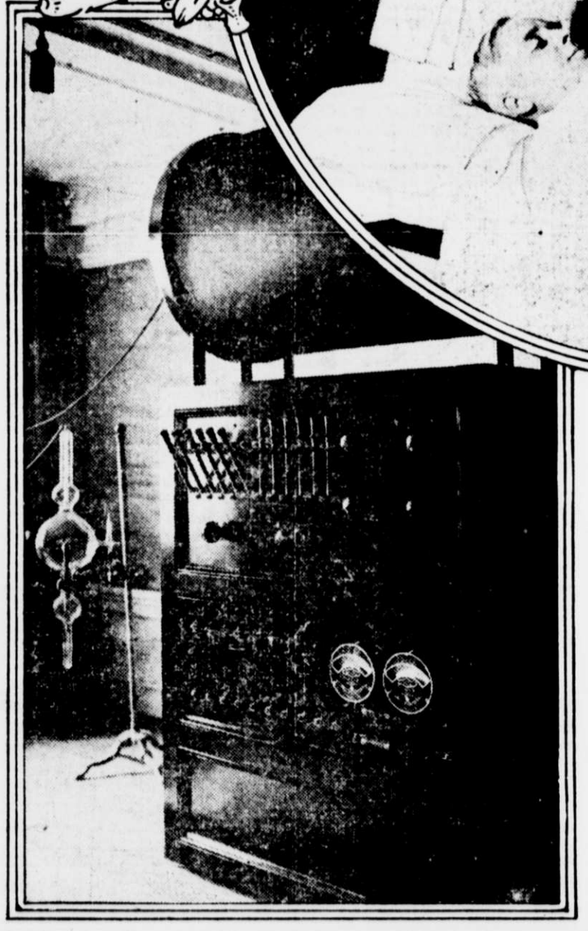
"Nerves are the natural conductors for the electric currents in the body. When nerve tissue hardens the normal control of associate muscles is impaired and bodily processes are disturbed more or less seriously. In other words, nature's conductor at the point of hardening has had its resistance increased and the current through the nerve filament is reduced or stopped, as the case may be. By means of the beams projected from my high frequency X-ray tube the gamma rays are made to attack the troubled nerve and to produce heat at the affected point. In this way the resistance due to a pathological condition is broken down, and the filament is restored to its rightful state as an electrical conductor. The recovered nerve then takes up its intended function in full and the consequent physical reflexes become those of health."

The layman will very properly ask, How can these high frequency currents be used when ordinarily a far lower order would do harm if of the same voltage? This is explained on the basis that a bullet of low velocity will cause a graver wound under some conditions than one speeding through the body at a much faster rate. The first combats the resistance of a bigger area, which has had time to muster its forces of opposition, and therefore tears or hurts a larger section, while the speedier bullet attacks so rapidly that only a very small area has a chance to interpose and the penetration or perforation is like the lightning movement of a fine and very sharp needle. In the case of the X-ray, however, this fineness and sharpness are increased beyond the descriptive power of words.

The high frequency X-ray of the Stanley sort passes with incredible swiftness through healthy body substance without effect, while it is designed to work curative wonders in dealing with affected or diseased tissues.

Inventor of Stanley X-ray with tubes of odd sizes.

Treating a patient with burnless X-ray. The largest tube is just above.



The Stanley X-ray machine, with largest tube in background.

These piercing "soft" rays were used in one instance to combat and to arrest pulmonary tuberculosis in which the lower lobe of one lung was in a very bad condition. For four hours the patient was subjected to an X-ray bath at the point in question, and during the administration one of Mr. Stanley's hands was directly in the path of that light. The treatment was heroic and is believed to have benefited the sufferer, while the operator's hand was absolutely unharmed. With the ordinary X-ray this would have been out of the question. Inside of three weeks or even less burns of an exceedingly grave character would undoubtedly have appeared.

Mr. Stanley says that his burnless X-ray has had notable results in cases of deafness; it has proved extremely beneficial in dealing with diabetes and Bright's disease; and he asserts that there is no doubt about the treatment being well nigh uniformly successful in the reduction of glandular swelling due to tuberculosis.

The applications of this particular ray have been comparatively limited up to date, but the medical fraternity have evinced great interest in the invention, and Government officials and Roentgenologists of some of the leading hospitals are investigating the Stanley apparatus.

One of Germany's foremost surgeons, Prof. Carl Ludwig Schleich, a man who has acquired his preeminence because of the marvellous things he has done with the knife, has said: "I look forward to the day when the field of operative surgery must give way to the more natural and to the so much more humane process of healing from within." The "soft" X-ray of benign influence is certainly a means toward that end. Without fear of hurt these rays can pass through the human body. The healthy tissues offer no obstacle, they are unaffected by the invisible beams in their passage, but the afflicted parts are awakened from their morbid state and stimulated to return to nature's normal.

Mr. Stanley says that the practice of electrotherapy has heretofore been along the wrong path when recourse was had to a return wire with the human body placed in the physical circuit. The resistance thus interposed, with the higher frequencies then used—immeasurably lower than those now made possible by the New Yorker's apparatus—caused difficulties that more than offset the curative properties of the current in its immediate effect upon the diseased area. That is to say the surrounding sound tissues have been hurt and nature's own processes tending toward recovery have been blocked or rebuffed in their inherent efforts.

But with the current of extraordinarily high frequencies and seemingly sure death voltage Mr. Stanley asserts he is able to deal with a sufferer without inviting any of the disastrous consequences heretofore risked with the facilities available. He employs only one wire with the negative electrode attached and makes the entire surrounding air complete this circuit or form the route for the return current, the air playing the part of the positive electrode. He says that this arrangement actually permits a current of enormous voltage and of extremely high frequency to pass readily through the body and the physical action is limited entirely to effect upon lesions, inflammation, &c.

All of this is quite contrary to the common understanding about the conductivity of the free air. Indeed, in a recent issue of the "Proceedings of the American Institute of Electrical Engineers" J. B. Whitehead has dealt with "the electric strength of air" and among other things said: "Air, under ordinary conditions an excellent insulator, has also the remarkable property of becoming under certain circumstances a very good conductor. • • • Air becomes a conductor when exposed to Roentgen rays, cathode rays, ultraviolet light, radioactive substances and other similar influences. In particular it acquires exceptional conductivity in the neighborhood of sparks, brush discharge and the high voltage corona."

It would seem evident, then, that Mr. Stanley has found a way to improve the air as a conductor through the agency of his novel X-ray tube and its peculiar output.

Some idea of the radiographic properties of his tube can be gathered from the fact that the ether vibrations are capable of affecting a sensitized plate at a distance of 39 feet. His apparatus is in a room about 15 feet long, and at one side of the entrance there is a projection, four feet through, that has blank walls and encases a dumbwaiter shaft leading to floors above. In other words, there are two walls, each probably six or eight inches thick, flanking the shaft, between a person standing in the hallway and the X-ray tube. With the operating room properly darkened a person fourteen or fifteen feet away from the tube and behind the shaft can see the bones in his hand distinctly by means of a fluoroscope screen!

Ordinarily in taking radiographs of the stomach and intestines it is necessary to give the patient a "bismuth meal," this chemical serving to bring out the affected parts by showing the outline or silhouette of them, but without emphasizing shades of difference where there is trouble. Mr. Stanley has been able to radiograph, without recourse to bismuth, inflamed areas, and what is more, to show the gradations of the diseased parts.

The value of this can readily be grasped both in making an original diagnosis and in following the later history of the complaint. Furthermore, because the operator can expose himself without fear of harm, it will be possible hereafter to administer the treatment with more directness and greater manipulative skill than has been practicable in the past.

TO MOVE SHAFT TO OLD HORSE

WHEN Rysdyk's Hambletonian, the stallion that founded the present great race of American light harness horses, died in 1876 the American Museum of Natural History expressed a desire to have the bones of the famous horse for exhibition in the museum. The late John H. Wallace, founder of the *American Register*, offered to defray the expenses of removing Hambletonian's remains from their burial place at Chester, N. Y., to the museum, making the proposition through Guy Miller of Chester, the first man who ever drew a rein over the horse, who was authorized to arrange with the two remaining heirs to the Rysdyk estate for the removal. One of the heirs refused to consent to the disturbing of the remains and the negotiations came to an end.

Hambletonian was buried on high ground on the Rysdyk place at Chester, and the grave was in full sight of the Erie Railroad, marked by a white slab. It was for years pointed out to tourists as one of the noted sights along the route. Because of that fact the monument that now commemorates the "old horse" is located away from the course of public highway travel, and the grave of the greatest trotting sire that ever lived, and still of worldwide fame, is practically hidden from sight except to those who make a detour and visit it especially, the sight of the monument being obscured even from the railroad by encroachments that have come between, a circumstance that has led to agitation for the removal of the monument to a more public place, as announced in THE SUN recently.

A memorial of some kind to Hambletonian had been suggested at different times, but no active move toward it was made until 1889, after the great horse had lain thirteen years in a practically neglected and unmarked grave. Rysdyk, who died one of the richest men in Orange county, his fortune having been made for him entirely by the services of Hambletonian, left no provision in his will for the care of the horse while he lived or for disposition of him after he died. There was division in his family over the will he left, and after Hambletonian died he was buried and left to forgetfulness. In 1889 the National Association of Trotting Horse Breeders took up the matter of erecting a memorial to the horse to which the race of trotters in this country owed its origin. The result was that a fund of upward of $2,000 was subscribed and paid in for the purpose, and a monument was decided upon.

Among the subscribers was ex-Senator Leland Stanford, who gave $500; the National Association of Trotting Horse Breeders gave $250, and John H. Wallace $100. William Rockefeller contributed $50, as did Edwin Thorne, the New Jersey Association of Trotting Horse Breeders, Charles Backman, founder of the Stony Ford stock farm, and A. J. Alexander. The balance of the fund was in subscriptions of smaller amounts by well known New York city, Kentucky and Orange county horsemen. A granite monument 27 feet high and 6 feet square at the base was ready for putting in place early in 1893. The local committee in charge of erecting it was Guy Miller, Charles Backman and James C. Howland, others on the committee being H. W. T. Mali and W. F. Redmond, representing the National Association of Trotting Horse Breeders.

Recognizing the fact that the place where Hambletonian was buried would be an obscure one for the placing of a memorial, Guy Miller offered to donate a site on an eminence in the village of Chester, near where Richard A. Delafield's summer residence and half mile track are now, from which the monument could be seen for miles around and from every public road. Committeeman Howland approved of the site, but Charles Backman, having a peculiar sentiment in the matter, which was that the site where Hambletonian was buried, being in such fine view from the Erie Railroad gave him opportunity to gaze on the grave as he passed in the cars on his frequent trips to and fro, begged that the monument be put up there, and submitting to his feelings, Mr. Miller and Mr. Howland withdrew the offer of the other site and the monument was erected where it is to-day.

It is not over the old horse's grave, as visitors suppose. The grave is beneath a maple tree some distance from the shaft, but in the same enclosure, for which, by the way, the heirs of Rysdyk—not of his kin, however, but kin of his second wife, who succeeded to the estate—demanded and were paid $50.

An inscription on the base of the monument reads:

"Born May 5, 1848. Died March 25, 1876."

Below this is a blank space which shows that at some time something inscribed there had been chiselled away. That elimination has always excited the curiosity of strangers visiting the spot, but no one has ever seemed able or willing to answer their queries regarding it, and only here and there is one in Chester who recalls now what the inscription was. It read thus:

"His greatness was the act of inherited power."

The vagueness of its phrasing and its application were so much criticised that the National Association of Trotting Horse Breeders ordered it cut away, and it was. On a panel beneath the blank space is the word: "Hambletonian." No one of the name of Rysdyk, or of an heir to the Rysdyk fortune that Hambletonian founded, had aught to do with the placing of this monument to the marvellous old horse.

The agitation for the removal of the monument to a more public place in Chester was renewed a short time ago, but no positive action has as yet been taken toward making the change. The memorial and the site are in the name of the National Association of Trotting Horse Breeders, and its consent would be necessary before the removal could be made.

Guy Miller of Chester, who was the earliest actual caretaker of Hambletonian, drew the first rein over him and took him to Elmira for exhibition at the great horse fair in that place in 1854, and Sam Wilkin, the village blacksmith of Chester, the only one that ever shod Hambletonian, are the sole survivors of those who helped bury the old horse in 1876.

NO VACATIONS FOR HIM

HE is a man whose name would be recognized by a host of readers if it should be printed in THE SUN, for he draws yearly as salary a sum of money that the average man would consider a comfortable fortune. Moreover, he is very prominent in business circles, being regarded as one having phenomenal ability and therefore entitled to his phenomenal pay.

A friend asked him on one of the recent days that were so hot as to fill the mind with longings for arctic travel when he was going to take his vacation, and he looked thoughtful, almost sad in fact.

"I would like a vacation," he said. "I don't really know whether I need one or not, but I certainly would enjoy having one. I sha'n't take one this year, though, and very likely won't take any next year. I haven't felt for a number of years that I could afford the luxury.

"You see," he continued when his friend laughed at him openly, "it is not a question of what I would spend. I wouldn't mind the expense of a trip around the world or of anything else in reason that anybody does when he takes a vacation, but that wouldn't begin to cover the cost to me.

"The fact is that the company that pays me for my services does so in the belief that I am the only man who can perform the duties of my position. If the directors knew or even thought that they could have those duties equally well attended to by a cheaper man they wouldn't keep on paying me as much as they do. That's about as certain as anything can be in this world of uncertainty and sin.

"Now if I should go away for any length of time what would happen? Why, somebody would have to look after the things that I do. Naturally it would be one of my assistants or some man whom the directors might select temporarily, to whom they would not think of paying as much as they pay me. And they would watch anxiously to see the result. I even fancy that they would be pretty nervous about it.

"Then what would happen? Well, everything would go along just as it does now. The business would be just as satisfactory and things would be done just as well as if I were here at my desk. I know that, but the directors don't, and I don't propose to have them find it out if I can help it. That's the reason why I have not taken a vacation for the last ten years and why I am not likely to take any until they do find it out. Then I'll probably have a good long one. But I have fooled them successfully for a long time now and I shall keep it up as long in the future as I can.

"Wouldn't I be a chump to take a vacation?"

In view of what he said it seems hardly necessary to explain why THE SUN does not give his name to the public.

CHAPERON FOR 16,000 GIRLS

PATERSON, N. J., militown, has an official chaperon for its 16,000 girl workers. Mrs. Grace E. Headifin, who officially looks out for their welfare, does not wear a big badge, uniform or carry a club, but she does do effective work and is ready at any time to horsewhip any of the youths who prey on the young and innocent. As part of her reforms she already has had the sale of intoxicants barred in the dance halls.

"I am the official chaperon of between 15,000 and 16,000 girls who work in our mills," she said. "Their ages vary from 16 to 25 and they are drawn from a cosmopolitan population, most of them with volatile temperaments and disposed to allow their emotions to overcome them if they become excited. I have to protect these girls from those who would take advantage of them under certain conditions. It is a man's job, but they have thought best to assign a woman to do it. The job fell to me and I am doing it, but I confess that I would like to escape from the conventional methods and utilize something new which might be even more effective than the old ways.

"For example, how would a man like to see me chasing him down the street and wielding a horsewhip as we went? Wouldn't he feel somewhat chagrined if we chanced to meet one of his friends? I have pictured to myself the really exciting moments he would have and how he would enjoy running right into a crowd of his cronies. Of course he wouldn't have time to explain. I would attend to my end of the drama. I have thought that this would be a very effective way of dealing with a certain class of individuals. I may try it some night, too, just by way of experiment. Oh, no, this is no joke. I mean it. I wouldn't hesitate to use a horsewhip and I am convinced from what I know of the characteristics of these men that a horsewhipping—cowhiding I believe they call it—would be more effective than a fine or a term in prison.

"It all comes about through the combination of the saloon and the dance hall. Previous to last year connection between them was allowed and as soon as the dances ended the beer and stronger drinks flowed freely. Girls were given whatever they asked for and many things they did not want. The result was disastrous and the consequences in numerous instances too frightful to describe.

"Dancing is perfectly harmless, but when these excitable girls were given drink at the end of the dances I need not say what happened. And they didn't want it. We have put every dance hall in Paterson on the water wagon and every proprietor has to furnish ice water. Do the girls go out and drink? Not so that any one could notice it. They remain in the hall after the dances close and drink ice water.

"Would I arrest a man? Just try me and see. And I wouldn't need any club or revolver either. Look at that arm. Do you think the average man about such a place could get by that? If you think so bring him on and let him try it. I would soon show him that the power in me vested will be maintained regardless of the consequences. But I don't mind confiding to you that I don't have to make arrests. They have constables at each dance and all I need do is to point out to these strongarms that this or that man is violating the ordinance. He receives the information that his room would be better than his company so suddenly and so emphatically that he immediately vacates the premises. In the few instances where this drastic treatment has been necessary they have never returned to any of the dances to trouble me again.

"Of the fifteen thousand or more working girls in Paterson sixty-five in each one hundred live away from their homes, or from near friends and relatives. Their only amusement, after their days of monotonous work, is the dance. Yes, I know, a few go to the movies, some go to the cheap vaudeville places, but the great majority of them go to the dance. In the winter dances are in progress in the public halls all the time. In summer the dances are at the social parks. The thing comes to the same in the end. No matter where they are, if drink is sold to them or given to them they will get drunk. No matter how much we might like to disguise that word it is true. They get drunk and it is appalling the number who have been seen helplessly intoxicated in the streets after one of these dances.

"I do not think Paterson is any worse than any other city. Quite the contrary. I guess you could find some of the same thing in the East Side of New York if you took the trouble to look. It is confined to no one city. Where a cosmopolitan population constitutes the bulk of the inhabitants you will find these unpleasant things, and it is no matter whether it is New York or Paterson or some other place. When liquor is used under the excitement and stimulus of the dance a greater or less degree of intoxication will result. Paterson has no reason to feel ashamed. She is no worse than the others. And let me add this, she is infinitely better than some because they haven't tried to prevent the trouble which flows from this condition.

"Many of the young men have come to me and have thanked me for what I have done to improve conditions that existed at these dance halls. They say that they do not want to drink and they do not. Nothing prevents their going out to get a drink, but they do not. They stay and drink ice water. Strange, I know, yet it is a fact which I can substantiate at any time you choose to go with me.

"Then it helps in the mills. Were girls went to their work with their brains befogged from beer or whiskey taken the night before their efficiency was cut down and they were often a prey to accidents which they could have avoided had they been alert. The same observation applies to young men. Thus the manufacturer benefits. The manufacturers are quite willing that conditions should remain as they are."

Mrs. Headifin is a motherly sort of woman who has a handsome daughter of her own and she insists that in doing for these workings girls exactly what she would like to have some one do for her daughter under similar circumstances.